

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

cc-ek
Docket 40-8084

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Lyman J. Olsen, M. D.
Director of Health
Division of Health
44 Medical Drive
Salt Lake City, Utah 84113

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Utah State Health Division
Environmental Health

OFFICE OF DIRECTOR
UTAH STATE HEALTH DIVISION

Dear Doctor Olsen:

Thank you for your letter of April 22, 1975, in which you advised us of Governor Rampton's tentative approval to exact a trust fund from Rio Algom in an amount sufficient to ensure restoration of the environment should the company fail to do so. Following receipt of your letter, we discussed with Mr. D. Dalley of your office the type of information we could provide which would be helpful to you.

With regard to licensee performance, we believe that Rio Algom should be required to accomplish the following:

1. Stabilize the tailings piles prior to termination of the license.
2. Perform yearly maintenance and monitoring of the tailings piles after termination of the license for a period of at least 50 years.
3. Restrict the use of the tailing piles area for a period of at least 50 years.

The purpose of the performance bond is to guarantee that these actions will be taken, even if Rio Algom defaults on their responsibilities. Rio Algom has demonstrated their willingness to guarantee performance by providing estimates of the amount of the bond required. The cost of the work associated with items 1 and 2 above has been estimated by Rio Algom. The cost of the initial stabilization of the tailings piles was originally estimated to be approximately \$96,000, for which cost Rio Algom stated they would post a bond in the amount of \$201,000.



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In a subsequent letter to NRC dated September 17, 1974 (enclosure 1), Rio Algom estimated that the initial stabilization cost had escalated to \$175,000, which they projected to be equivalent to \$238,000 in 1980 dollars, and for which they proposed a bond of \$238,000 to cover the cost of the work in or about 1980. Furthermore, Rio Algom stated (enclosures 1 and 2) that they will place in escrow a sum of \$37,294 to cover the 50-year maintenance costs for the tailings piles. Additional details pertaining to the reclamation and stabilization work are contained in the NRC Final Environmental Statement (FES) for the Rio Algom Uranium Mill. A copy of the section dealing with reclamation and restoration procedures from the unpublished FES is attached (enclosure 3).

Although you make no mention of the bond for the long term maintenance and care, we assume that the State will also hold a surety bond for this effort as well in accordance with the discussions in our meeting of January 7, 1975, and the NRC letter to you dated November 14, 1974. The State of Utah may want to consider reviewing the bonding arrangement yearly to determine if the amount remains adequate or if adjustments are necessary because of cost increases due to inflation or other circumstances.

We will provide Rio Algom with a copy of this letter and inform them to contact your office so that arrangements between Rio Algom and the State may be finalized. We would appreciate an opportunity to review the form and content of the agreement between Utah and Rio Algom before it is executed.

Sincerely,



for Howard J. Larson, Director
Division of Materials and
Fuel Cycle Facility Licensing

Enclosures:

1. Ltr 9/17/74 Rio Algom to NRC
2. Ltr 10/7/74 Rio Algom to NRC
3. Section from unpublished FES

o/Alton
oTinto

September 17, 1974

Mr. John F. Kendig
Materials Branch
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

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MAY 22 1975

OFFICE OF DIRECTOR
UTAH STATE HEALTH DIVISION

Re: Docket No. 40-8084

Dear Mr. Kendig:

In response to your queries by telephone September 9th, we submit the following.

1. We have authorized our attorneys in Salt Lake to commission John C. Shephard, a cadastral surveyor, registered with the Bureau of Land Management, to carry out a metes and bounds survey of relevant area. Mr. Shephard had advised he can start the work in April '75 and it may require three months for completion.

Patent proceedings have been initiated, and are expected to require three years as a likely minimum.

Should any of the mining claims required to encompass the relevant area not qualify for patent "Mill site patents" will be applied for under the authority of U.S. Code Title 30, Section 42, as an effective alternative.

2. Our estimate of the cost of the abandonment work has escalated to \$175,000 in current terms, and is further moved up to \$238,000 in 1980 dollars (the estimated time of closure of operations).
3. We have conferred with the A.E.C. office in Grand Junction, Col., as to their cost experience for remedial work with tailings at 'Monticello, Utah.' There the catchment area, which drains between the two tailings piles, is 26.6 square miles. They estimate \$1,000 to \$5,000 per annum for maintenance.

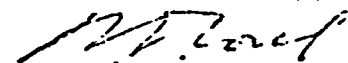
We are undertaking to provide a by-pass trench through undisturbed ground from a catchment area of less than one square mile, in a lower rainfall area.

From the above reference we propose to provide, following abandonment in 1980, for \$17,500 for each of the first two 5-year periods, and \$12,500 for each successive 5-year period to cover the 50-year span.

4. It is proposed to provide funds for items 2 and 3 above in an undertaking by Rio Algom Corp., - with a guarantee by Rio Algom Mines Limited, to take effect in 1980. The latter is a parent company of substantial assets, as indicated by the 1973 annual report attached. The undertaking will provide for the abandonment work, \$238,000 in or about 1980, when this can be carried out. Rio Algom Corp., further undertakes, to place in escrow in 1980 a sum of \$37,294, deemed sufficient to cover the maintenance costs given above. It is proposed that this latter sum, in the form of a self-liquidating annuity, be deposited with the A.E.C. or such agency as it may approve.

It is estimated that the re-survey and patenting of the ground will cost approximately \$75,000 (in addition to the above). We deplore this heavy charge against a small operation, as it contributes nothing to environmental security. If the A.E.C. could suggest a less onerous alternative the company would be most appreciative.

Yours very truly,



R. D. Lord
Vice-President
Research & Development

RDL:k
Att.

October 7th, 1974.

Mr. John F. Kendig,
Materials Branch,
Directorate of Licensing,
United States Atomic Energy Commission,
Washington, D. C. 20545.

Dear Mr. Kendig:

Re: Docket No. 40-8084

To answer your question regarding the provision of funds to cover maintenance costs for 50 years from 1980 for the Lisbon tailings area, the figures given in Mr. R. D. Lord's letter of 17th September are based on the following:

1. A sum of \$37,294 is deposited on 1st January 1980 at 8% annually.
2. In the first two 5-year periods an average of \$3,500 is spent annually ($5 \times \$3500 = \$17,500$) and thereafter \$2,500 is spent annually on the average, or \$12,500 every 5 years to a total of 50 years.
3. Based on present value tables at 8% annual interest, the following is derived:

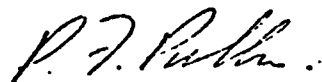
<u>Periods</u>	<u>Required Amount Per Annum</u>	<u>Present Value of 1 per period</u>	<u>Total Present Value at 1st January 1980</u>
50	\$2500	12.2334846431	\$30,583.71
10	\$1000	6.7100813989	\$ 6,710.08
Total			\$37,293.79

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4. Based on the above, in the first 5 years the interest income is \$15,468 compared to a pay-out of $\$3500 \times 5$ or \$17,500, and thus the original \$37,294 deposited has decreased by only \$2,232.

I trust that this explanation is satisfactory.

Yours truly,



P. F. Pullen, P. Eng.,
Chief Environmental Engineer.

PFP/mm

cc: R. D. Lord

That the AEC Radiological Assistance Plan is operative and not merely a paper instrument has been demonstrated on several occasions in which the AEC has responded to calls for assistance. An example which exemplifies the degree of involvement of the AEC is an incident involving a trans-continental shipment of 10 curies of radioactive methyl iodide from an East Coast laboratory consigned to a Western State. This incident required the activation of several Regional Radiological Assistance Teams. The details of how the AEC responded to this incident have been reported in the June 1967 issue of the Health Physics Journal.

G. RECLAMATION AND RESTORATION

The State of Utah does not have surface mining or mined land reclamation laws. However, when the mine operations are terminated, the mine entrance will be sealed with a concrete slab set on the concrete shaft collars. The tailings pile will be graded, covered with earth and topsoil and seeded. Approximately 45 acres will be involved. The downstream face of the present dam has been re-seeded and as of August 1973 it was reported to be covered with grasses (15 to 20%) and annual weeds (65 to 70%) for a total coverage of about 80 to 90%. The seed mixture selected for the tailings area on cessation of operations will be based on the advice of the Bureau of Land Management or the Department of Agriculture as being most suitable for the area and conditions. The applicant has stated that if vegetation has not become sufficiently well established on the face of the dam at time of termination, the slope of the dam will be lowered to a more stable angle before re-seeding. The applicant has stated that in order to reduce radiation from the tailings to acceptable levels approximately 18 inches of soil will be placed over the pile. Depending upon the condition of the tailings pile, i.e., undisturbed and unsaturated soil or wet soil, theoretically a hundredfold decrease of radon concentration could be expected to occur through distances of 9 feet to 1/3 foot. Consequently, the thickness required will be determined by tests at closedown. Radiation levels around the reclaimed tailing basin at Monticello, a former operating mill, have been reported to be near background readings. The tailing basin reclamation will be initiated as soon as an area of the tailing pile surface is in a condition that will permit the use of equipment necessary to accomplish the stabilization and is in a state that will accept the stabilization procedure. The basin will be protected from major amounts of runoff by the diversion system described in an earlier part of this report.

Stabilization procedures described by the applicant have been found to be effective at other sites as reported by Mr. Ludeke of the Pima Mining Company and others at the International Tailing Symposium in Tucson, Arizona, 1972. If the applicant were to encounter difficulties in establishing an adequate ground cover for the area, several techniques are available to help overcome the problem. These methods usually consist of properly preparing the area for seeding by evening out the

slopes, breaking up the soil and applying barley straw and compacting with a sheeps foot roller at the rate of 5 tons per acre. This insulates against heat and cold and breaks up rain drops and prevents erosion. The application of sewage effluent either from a dairy feed lot or municipal sewerage at 1000 to 1500 gallons per acre has been reported used successfully as a fertilizer. During the growth period of the new vegetation animal food strategically placed around the area will assist in keeping birds and animals from eating seedlings. Other alternative methods are available for stabilization. A few of these techniques and associated costs are identified in Table XXV.⁽³⁶⁾ The costs shown are for stabilizing a tailing pond of approximately 80% pond area and 20% dike area. Dikes cost approximately 25% more to stabilize.

TABLE XXV. STABILIZATION COSTS

Stabilization Procedure	Cost/Acre
1. Straw harrowing	\$ 40
2. Straw harrowing with a 12-inch depth of soil cover	1,700
3. Chemical	250 to 750
4. Vegetative procedures, hydro seeding	200
5. Vegetative procedure, 12-inch soil cover and mechanical seeding	1,750

In those areas where irrigation may be necessary, new techniques are available which would allow the application of water at low rates over a long period of time.

When the applicant submits a request to terminate the license, the stabilization and restoration techniques will be closely reviewed. At that time, and if needed, alternatives similar to those just mentioned would be prescribed prior to terminating the license.

(36) Notes from the First International Tailings Symposium, Tucson, Arizona, October 31, November 1, 2 and 3, 1972.

Rio Algom has estimated the cost of the reclamation to be on the order of \$96,000. Using the large value of \$1,750 per acre from Table XXV as the cost of the stabilization, it is seen that the \$96,000 estimate is realistic for the 45 acres. To ensure a satisfactory performance of the reclamation, a bond of \$201,000 will be posted by Rio Algom Corporation. This amount includes escalation of 5% to 1980. However, the cost of reclamation will be determined to a large degree by the thickness of soil cover required. Depending upon the results of the "as low as practicable" studies for uranium mills (see Section II.G) and the amount of work required to maintain the tailings area for a period of 50 years, the \$201,000 bond would be insufficient.

Prior to the termination of milling activities, the licensee will be required to apply for an amendment to the license requesting permission to terminate the license. In the request for the amendment, the applicant will be required to describe in detail his decommissioning procedures and perform a radiation survey of the facilities. Prior to the release of the premises or removal of the buildings and foundations, the licensee must show that radiation and contamination levels are within the limits of the AEC guides. Following the review of the report, the AEC will consider visiting the facility to confirm the survey. Depending upon the circumstances, the applicant may be required to submit an environmental statement on the decommissioning operations. This decision will be made by the AEC prior to termination of the license. Depending upon the results of the reclamation and stabilization procedures at shutdown, the construction of a fence around the tailings pond area and permanent warning marker will be evaluated and decided upon.

Upon termination of the license, the land on which the tailings are stored will be subject to the following restrictions.

- The holder of the possessory interest will not permit the exposure and release of the tailings material to the surrounding area.
- The holder of the possessory interest will prohibit erection of any structures for occupancy by man or animals.
- Sub-division of the covered surface will be prohibited.
- No private roads, trails, or rights-of-way may be established across the covered surface.

In order for Rio Algom to obtain a full term license, Rio Algom will be required to initiate and complete patent procedures. Consequently, the encumbrances mentioned above, including annual maintenance and repair of the covering of the tailings piles, diversion ditches, fences and environmental monitoring surveys, will be binding on the applicant while

it holds the land on which the tailings piles rest, and on its successors thereafter, for a period of 50 years or until such time prior to the expiration of the 50-year period as government regulations are instituted to control disposition of uranium mill tailings. The 50-year restriction is an arbitrary figure, but it is believed to be an adequate time period for the tailings problem to be fully studied and resolved.